```matlab
clear;
%nakagami m=2
alpha=0.5;
s=0;
 h= alpha/(1-alpha);
 e=1/(1-alpha);
 y= 2^(e)-1;
 m=2;
 k=1;
 res=1;
 hold on;
 fprintf("Nakagami m=2")
for snr_db= 0 :5 :30
 snr= 10^(0.1*snr_db);
%a1=(1+k1)/g1;
 p= (h*snr)/y;
 s=meijerG([1],[],[m,0],[m],m^2/p);
 res= s;
 fin(k)=res;
 s=0;
 k=k+1;
end
 qw= 0:5:30;
 p1=plot( qw,fin,'DisplayName','nakagami,m=2');
 set(gca,'Yscale','log')
 xlabel("g1 SNR (db)")
 ylabel("Outage probability")
 title("Outage Probability Vs SNR for different fading channels ");

s=0;
alpha=0.5;
 h= alpha/(1-alpha);
 beta=1;
 k=1;
  e=1/(1-alpha);
  y= 2^(e)-1;
 res=1;
 fprintf("Weibull")
for snr_db= 0 :5 :30
 snr= 10^(0.1*snr_db);
%a1=(1+k1)/g1;
 p= y/(h*snr);
 s=1-(p^beta)*meijerG([],[],[0,-1],[],p^beta);
 res= s;
 fin(k)=res;
% res=1;
 s=0;
 k=k+1;
end
 qw= 0:5:30;
 plot(qw,fin,'DisplayName','weibull beta=1')
 set(gca,'Yscale','log')
```

```matlab
%legend()
%str = sprintf('alp=%.2f',alpha);
%text(qw(end),fin(end),str);
%ray
k=1;
res=1;
fprintf("rayleigh")
for snr_db= 0 :5 :30
snr= 10^(0.1*snr_db);
%a1=(1+k1)/g1;
p= (h*snr)/y;
s=1-meijerG([1],[],[],[],p);
res= s;
fin(k)=res;
s=0;
k=k+1;
end
qw= 0:5:30;
plot(qw,fin,'DisplayName','Rayleigh');
set(gca,'Yscale','log')
%rician
k1=2;
k2=2;
z=1/exp(k1+k2);
s=0;
%a1=1;
a2=1;
%g1=
g2=2;
a2=(1+k2)/g2;
y=1;
k=1;
res=1;
%display("alpha is"+alpha)
fprintf("rician")
for snr_db= 0 :5 :30
 g1= 10^(0.1*snr_db);
 a1=(1+k1)/g1;
 p= y*a1*a2/h;
 for i= 1:10
 for j= 1:10
 s= s+ ((k1^(i-1))*(k2^(j-1)))/((factorial(i-1)* factorial(j-1))^2) *
 meijerG([1],[],[i,j],[0],p);
 end
 end
 res= s*exp(-k1-k2);
 % disp( " g1 value " +g1); disp( " a1 value " +a1);
 %disp( " res is "+res);
 fin(k)=res;

 s=0;
 k=k+1;
end
qw= 0:5:30;
```

```matlab
p1=plot( qw,fin,'DisplayName','Rician,k=2');

k1=1;
k2=1;
z=1/exp(k1+k2);
m1=2;
alpha=0.5;
 s=0;
h= alpha/(1-alpha);
%a1=1;
a2=1;
%g1=
%g2=2;
%a2=(1+k2)/g2;
y=1;
k=1;
res=1;
display("alpha is"+alpha)
for snr_db= 0 :5 :30
 snr= 10^(0.1*snr_db);
 %disp("res bfr loop begins "+res)

 %disp("s bfr loop begins "+s)
 %a1=(1+k1)/g1;
 a1=1;
 p= y*a1*a2/(h*snr);
 for i= 1:10
 for j= 1:10
 s= s+ ((k1^(i-1))*(k2^(j-1)))/
((factorial(i-1)*factorial(j-1))*(factorial(i+m1-1)*factorial(j
+m1-1)))*meijerG([1],[],[i+m1-1,j+m1-1],[0],p);
 end
 end
 res= s*exp(-k1-k2);
 %disp( " snr value " +g1); %disp( " a1 value " +a1);
 disp( " res is "+res);
 fin(k)=res;
 res=1;
 s=0;
 k=k+1;
end
qw= 0:5:30;
plot(qw,fin,'DisplayName','Kappamu')
set(gca,'Yscale','log')
%str = sprintf('alp=%.2f',alpha);
%text(qw(end),fin(end),str);
xlabel("g1(SNR)")
ylabel("Outage probability")
legend('Location',"best")
hold off

Nakagami m=2Weibullrayleighrician      "alpha is0.5"

 res is 0.013269
```
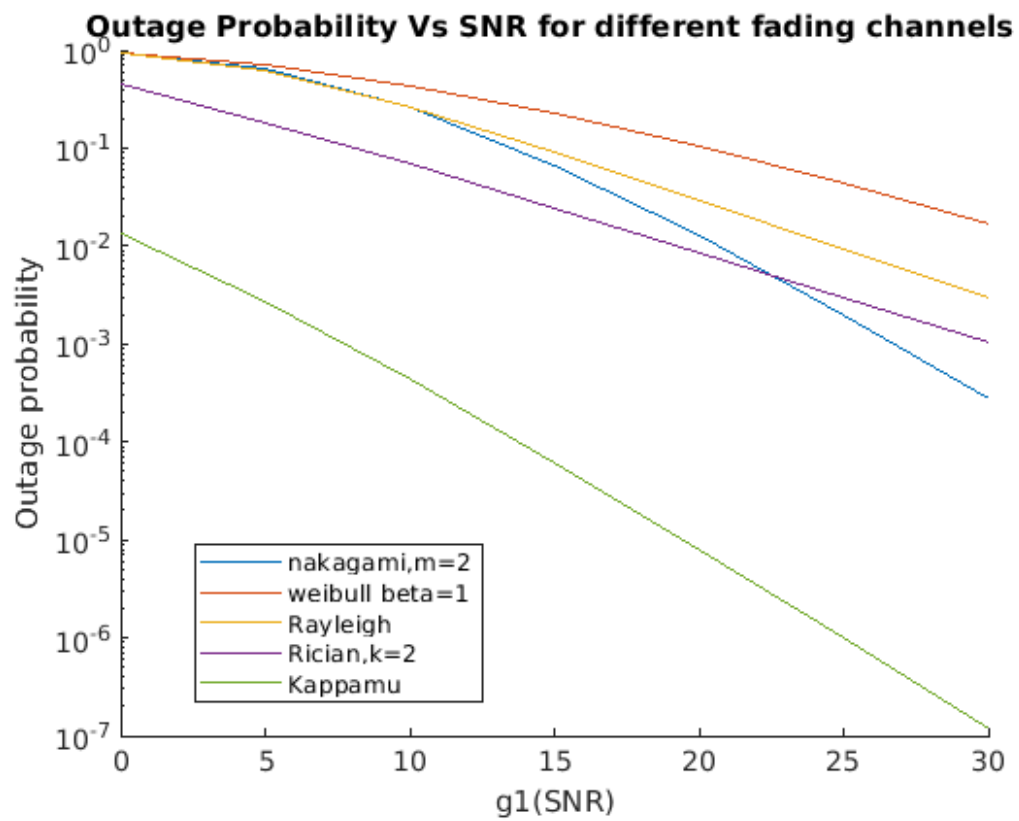
```
res is 0.0026532
res is 0.00042983
res is 6.1134e-05
res is 8.007e-06
res is 9.9336e-07
res is 1.1873e-07
```

Outage Probability Vs SNR for different fading channels

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